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CEHIC, KENAN	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/532,748	PAVON ET AL.	
	Examiner	Art Unit	
	Kenan Cehic	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *04/26/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

Claim Objections

1. Claims 1-9, 15, 17, 19, 23, 25 are objected to because of the following informalities:

For claim 1, the claim limitation "a least one data stream" in line 6 seems to refer back to "least one data stream" in line 4. If this is true it is suggested to applicant to change this to --said least one data stream --.

For claim 7, the claim limitation "said Maximum Service Intervals" in line 3 seems to refer back to "Maximum Service Interval" in claim 5 line 3. If this is true it is suggested to applicant to change this to --said Maximum Service Interval--. Similar problems exist in claim 15 line 3, claim 23 line 3.

For claim 9, the limitation "said Transmission rate" in line 7 is the first occurrence. It is suggested to change this to –Transmission rate--. Similar problems exist in claim 17 line 7, claim 25 line 7.

For claim 19, the claim has an improper dependency. For examination purposes claim 19 is taken to depend on claim 18.

For claim 25, it seems there is a duplicate and redundant equation for "Ni".

Dependent claims are objected since they depend on objected claims.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 9,10,17,25,26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For claim 7, the claim limitation "said calculated SI" lacks antecedent basis. It is not know which calculated SI the applicant is refereeing to.

For claim 9,17,25 for the first and second equation the variable "Li" and "M" are not defined.

For claim 10 and 26, for the first and second equations the variables "TXOPi", "Ni" are not defined.

For claim 10 and 26, for the first equation the upper limit "k" of the summation is unbound and undefined.

For claim 11, the limitation "said at least one upstream sidestream or downstream traffic stream" in line 6 has no antecedent basis.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 1, 2,11, 20 is rejected under 35 U.S.C. 102(e) as being anticipated by Sherman (US 2003/0161340).

For claim 1, Sherman discloses a method for scheduling (see section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals") the transmission of a data stream (see section 0031 lines 1-5 "traffic delivered to STAs in its network and STAs deliver traffic" and section 0029 15-20 "delivering traffic to the STAs" and section 0030 lines 1-10 "transmission of a frame "and section 0029 lines 1-10 "two frames...multicast frames" and section 0031 lines 15-25 "data frames" and section 0038 lines 5-25 "frame exchange") in a wireless communications network (see Figure 1, 104, 150,101-13) having at least one access point (QAP) (103) (see Figure 1, 105, 117) and at least one station (WSTA) (110, 112, 114) (see Figure 1, 101,102,103), the method (see section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals") comprising the steps of:

receiving a request (see section 0040 lines 1-10 "STAs may request transmission oppurtunities from the HC" and Figure 2C ;217-229) to send at least one data stream (see section 0031 lines 1-5 "traffic delivered to STAs in its network and STAs deliver traffic" and section 0029 15-20 "delivering traffic to the STAs") for transmission (see section 0040 lines 1-10 "STAs may request transmission oppurtunities from the HC") from at least one WSTA (110, 112, 114) (see section 0040 lines 1-10 "STAs") by said QAP(103) (see section 0040 "HC" and Figure 1, 105, 117);

granting (see section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals") , by said QAP(103) (see Figure 1, 105, 117), said request (see section 0031 lines 1-5 "traffic delivered to STAs in its network and STAs

deliver traffic" and section 0029 15-20 "delivering traffic to the STAs") to send said at least one data stream (see section 0031 lines 1-5 "traffic delivered to STAs in its network and STAs deliver traffic....STA may transmit" and section 0029 15-20 "delivering traffic to the STAs"); transmitting, by said at least one WSTA(110, 112, 114), a MAC (see section 0082 lines 1-5 "MAC frame") frame (see section 0048 lines 1-10 "frame....RR") comprised of a set of parameters (see section 0048 lines 1-10 "values") defining the characteristics (see section 0048 lines 1-10 "values in the quality of service....traffic category....transmittion duration....transmission category...size") of said at least one data stream (see section 0031 lines 1-5 "traffic delivered to STAs in its network and STAs deliver traffic" and section 0029 15-20 "delivering traffic to the STAs" and section 0030 lines 1-10 "transmission of a frame "and section 0029 lines 1-10 "two frames...multicast frames" and section 0031 lines 15-25 "data frames"); and, calculating (see section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-15 "contention free period....use the wireless medium when granted permission"), by said QAP(103) (see Figure 1, 105, 117 and section 0038 lines 5-20 "contention period is a time period...frame exchange to occur....HCF....hybrid coordinator"), service and transmission times (see section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-20 "contention free

period....use the wireless medium when granted permission...Acess algorithm") according to a schedule algorithm (see section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-15 "contention free period....use the wireless medium when granted permission") for servicing (see section 0038 lines 5-20 "right to transmit is assigned to STAs...frame exchange to occur.." and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-15 "contention free period....use the wireless medium when granted permission" and section 0036 "STAs 101,102, and 103...connected via ...access point") said at least one WSTA(110, 112, 114) (see Figure 1, 101,102,103).

For claim 2, wherein said schedule algorithm (see section 0038 lines 5-25 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-15 "contention free period....use the wireless medium when granted permission") is operative to schedule (see section 0038 lines 5-25 "right to transmit is assigned to STAs....frame exchanges" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-15 "contention free period....use the wireless medium

when granted permission") the transmission of said at least one data stream (see section 0031 lines 1-5 "traffic delivered to STAs in its network and STAs deliver traffic" and section 0029 15-20 "delivering traffic to the STAs" and section 0030 lines 1-10 "transmission of a frame "and section 0029 lines 1-10 "two frames...multicast frames" and section 0031 lines 15-25 "data frames" and section 0038 lines 5-25 "frame exchange") at said calculated service and transmission times (see section 0038 lines 5-25 "contention-free period...is a time period.....right to transmit is assigned to STAs....allowing frame exchanges to occur" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-15 "contention free period....use the wireless medium when granted permission").

For claim 3, Sherman discloses step of generating (section 0029 lines 16-25 "uses a poll....access point....polls STAs" and section 0031 "lines 1-20 "polled...poll") ,at said QAP(103) (see Figure 1, 105, 117) , polling (section 0029 lines 16-25 "uses a poll....access point....polls STAs" and section 0031 "lines 1-20 "polled...poll") frames (see section 0031 lines 1-20 "frame" and section 0031 lines 1-5 "traffic delivered to STAs in its network and STAs deliver traffic" and section 0029 15-20 "delivering traffic to the STAs" and section 0030 lines 1-10 "transmission of a frame "and section 0029 lines 1-10 "two frames...multicast frames" and section 0031 lines 15-25 "data frames" and section 0038 lines 5-25 "frame exchange") or downlink frames (see section 0031 lines 1-5 "traffic delivered to STAs in its network and STAs deliver traffic" and section

0029 15-20 "delivering traffic to the STAs" and section 0030 lines 1-10 "transmission of a frame "and section 0029 lines 1-10 "two frames...multicast frames" and section 0031 lines 15-25 "data frames" and section 0038 lines 5-25 "frame exchange") at said calculated service and transmission times (see section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-15 "contention free period....use the wireless medium when granted permission") allocated (see section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals") to said at least one WSTA(110, 112, 114) (see Figure 1, 101,102,103) for transmission of said at least one data stream (see section 0031 lines 1-5 "traffic delivered to STAs in its network and STAs deliver traffic" and section 0029 15-20 "delivering traffic to the STAs" and section 0030 lines 1-10 "transmission of a frame "and section 0029 lines 1-10 "two frames...multicast frames" and section 0031 lines 15-25 "data frames" and section 0038 lines 5-25 "frame exchange").

For claim 11, Sherman discloses a method for scheduling (see section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals") the transmission of a data stream (see section 0031 lines 1-5 "traffic delivered

to STAs in its network and STAs deliver traffic" and section 0029 15-20 "delivering traffic to the STAs" and section 0030 lines 1-10 "transmission of a frame "and section 0029 lines 1-10 "two frames...multicast frames" and section 0031 lines 15-25 "data frames") in a wireless communications network see Figure 1, 104, 150,101-13) having at least one access point (QAP)(103) (see Figure 1, 105, 117) and at least one station (WSTA) (110, 112, 114) (see Figure 1, 101,102,103), the method (see section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals") comprising the steps of

determining (see section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-15 "contention free period....use the wireless medium when granted permission" and section 0028-0029 "MAC layer provides access control functions for shared medium physical layer...MAC frame exchange...frame sent from source to the destination"), at said QAP(103) (see Figure 1, 105, 117 and section 0038 lines 5-20 "contention period is a time period...frame exchange to occur....HCF....hybrid coordinator"), whether at least one data stream (see section 0031 lines 1-5 "traffic delivered to STAs in its network and STAs deliver traffic" and section 0029 15-20 "delivering traffic to the STAs" and section 0030 lines 1-10 "transmission of a frame "and section 0029 lines 1-10 "two frames...multicast frames" and section 0031 lines 15-25 "data frames" and section 0038 lines 5-25 "frame exchange") is originated from said at least one WSTA(110, 112, 114) (see section 0038 lines 5-15 "right to

transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-15 "contention free period....use the wireless medium when granted permission" and section 0028-0029 "MAC layer provides access control functions for shared medium physical layer...MAC frame exchange...frame sent from source to the destination") based on a MAC (see section 0082 lines 1-5 "MAC frame") frame comprised of a set (see section 0048 lines 1-10 "values") of parameters defining the characteristics (see section 0048 lines 1-10 "values in the quality of service....traffic category....transmittion duration....transmission category...size") of said at least one downstream (see section 0029 lines 1-10 "frame sent from the source to the destination" and section 0031 lines 1-10 "traffic is delivered to the STAs") traffic stream (see section 0031 lines 1-5 "traffic delivered to STAs in its network and STAs deliver traffic" and section 0029 15-20 "delivering traffic to the STAs" and section 0030 lines 1-10 "transmission of a frame "and section 0029 lines 1-10 "two frames...multicast frames" and section 0031 lines 15-25 "data frames"); computing (see section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-15 "contention free period....use the wireless medium when granted permission") service and transmission times see section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention

intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-20 "contention free period....use the wireless medium when granted permission...Acess algorithm"), at said QAP(103) (see Figure 1, 105, 117 and section 0038 lines 5-20 "contention period is a time period...frame exchange to occur....HCF....hybrid coordinator"), for servicing said at least one WSTA(110, 112, 114) in accordance with a schedule algorithm (see section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-15 "contention free period....use the wireless medium when granted permission")

and, transmitting (see section 0031 lines 1-10 "transmit one frame"), by said at least one WSTA(ll0, 112, 114) (see Figure 1, 101,102,103), said at least one data stream (see section 0031 lines 1-5 "traffic delivered to STAs in its network and STAs deliver traffic" and section 0029 15-20 "delivering traffic to the STAs" and section 0030 lines 1-10 "transmission of a frame "and section 0029 lines 1-10 "two frames...multicast frames" and section 0031 lines 15-25 "data frames" and section 0038 lines 5-25 "frame exchange") at said computed service and transmission times (see section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-

15 "contention free period....use the wireless medium when granted permission").

For claim 20, Sherman discloses a system (see Figure 1, 100) for scheduling (see section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-15 "contention free period....use the wireless medium when granted permission" and section 0028-0029 "MAC layer provides access control functions for shared medium physical layer...MAC frame exchange...frame sent from source to the destination") the transmission of a data stream (see section 0031 lines 1-5 "traffic delivered to STAs in its network and STAs deliver traffic" and section 0029 15-20 "delivering traffic to the STAs" and section 0030 lines 1-10 "transmission of a frame "and section 0029 lines 1-10 "two frames...multicast frames" and section 0031 lines 15-25 "data frames" and section 0038 lines 5-25 "frame exchange") in a wireless communications network (see Figure 1, 104, 150,101-13,) having at least one access point (QAP)(103) (see Figure 1, 105, 117) and at least one station (WSTA) (110, 112, 114) (see Figure 1, 101,102,103), the system (see Figure 1, 100) comprising:

means (see Figure 1, 101-117) for determining (see section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-15 "contention free period....use the wireless medium when granted permission" and section 0028-0029

"MAC layer provides access control functions for shared medium physical layer...MAC frame exchange...frame sent from source to the destination"), at said QAP(103) (see Figure 1, 105, 117 and section 0038 lines 5-20 "contention period is a time period...frame exchange to occur....HCF....hybrid coordinator"), whether at least one data stream (see section 0031 lines 1-5 "traffic delivered to STAs in its network and STAs deliver traffic" and section 0029 15-20 "delivering traffic to the STAs" and section 0030 lines 1-10 "transmission of a frame "and section 0029 lines 1-10 "two frames...multicast frames" and section 0031 lines 15-25 "data frames" and section 0038 lines 5-25 "frame exchange") is originated (see section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-15 "contention free period....use the wireless medium when granted permission" and section 0028-0029 "MAC layer provides access control functions for shared medium physical layer...MAC frame exchange...frame sent from source to the destination") from said at least one WSTA(ll0, 112, 114) (see Figure 1, 101,102,103) based on a MAC frame (see section 0082 lines 1-5 "MAC frame") comprised of a set of parameters (see section 0048 lines 1-10 "values") defining the characteristics see section 0048 lines 1-10 "values in the quality of service....traffic category....transmittion duration....transmission category...size") of said at least one data stream (see section 0029 lines 1-10 "frame sent from the source to the destination" and section 0031 lines 1-10 "traffic is delivered to the STAs");

means (see Figure 1, 101-117) for computing (see section 0038 lines 5-15 "right to

transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-15 "contention free period....use the wireless medium when granted permission") service and transmission times (see section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-20 "contention free period....use the wireless medium when granted permission...Acess algorithm"), at said QAP(103) (see Figure 1, 105, 117 and section 0038 lines 5-20 "contention period is a time period...frame exchange to occur....HCF....hybrid coordinator"), for servicing said at least one WSTA(ll0, 112, 114) in accordance with a schedule algorithm (see section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-20 "contention free period....use the wireless medium when granted permission...Acess algorithm"); and, means (see Figure 1, 101-117) for transmitting (see section 0031 lines 1-10 "transmit one frame"), by said at least one WSTA(110, 112, 114) (see Figure 1, 101,102,103), said at least one data stream (see section 0031 lines 1-5 "traffic delivered to STAs in its network and STAs deliver traffic" and section 0029 15-20 "delivering traffic to the STAs" and section 0030 lines 1-10 "transmission of a frame "and section 0029 lines 1-10 "two frames...multicast frames" and section 0031 lines 15-25 "data frames" and section 0038 lines 5-25 "frame

exchange") at said computed service and transmission times times (see section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-15 "contention free period....use the wireless medium when granted permission").

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claim 4,5, 12,13,21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sherman (US 2003/0161340) in view of Ho (US 2003/0081547).

For claim 4,5, 12,13,21, Sherman discloses all the claimed invention as in paragraph 3.

For claims 5,13,21, Sherman discloses parameters (see section 0048 lines 1-10 "values") of said MAC (see section 0082 lines 1-5 "MAC frame") frame (see section 0048 lines 1-10 "frame....RR") Sherman is silent about:

For claim 4 and 12, said at least one data stream is parameterized traffic stream.

For claim 5,13,21, Mean Data Rate 6o0, Nominal MSDU Size (Li), and Maximum Service Interval or Delay Bound (Di).

Ho from the same or similar field of endeavor discloses a communication system with the following features:

For claim 4 and 12, said at least one data stream (see section 0010 lines 1-10 "traffic stream") is parameterized traffic stream (see section 0010 lines 1-10 "traffic stream with parameterized Qos").

For claim 5,13,21, Mean Data Rate 6o0 (see section 0089 lines 1-24 "mean data rate"), Nominal MSDU Size (Li) (see section 0089 lines 1-24 "nominal MSDU size"), and Delay Bound (Di) (see section 0089 lines 1-24 "delay bound").

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Sherman by using the features, as taught by Ho, in order to provide a method for initiating a QoS action on a traffic stream (see sections 0009-0011).

5. Claim 6, 14, 22 rejected under 35 U.S.C. 103(a) as being unpatentable over Sherman (US 2003/0161340) in view of Lazoff (US 2004/0151283).

For claim 6, 14, 22, Sherman discloses all the claimed invention as in paragraph 3.

Sherman is silent about:

For claim 6, 14, 22, determining a Service Interval (SI) and determining a TXOP duration for said SI.

Lazoff from the same or similar field of endeavor disclose a poll schedule with the following features

For claim 6, 14, 22, determining a Service Interval (SI) (see Figure 7,710-730) and 10 . determining a TXOP duration (see Figure 7, 740) for said SI (see Figure 7, 710-740).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Sherman by using the features, as taught by Ho, in order to provide a method expeditious handling of emergency message frames (see sections 00058-0011).

6. Claim 7,15, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sherman (US 2003/0161340) in view of Lazoff (US 2004/0151283) as applied to claim 6, 14, and 22 above, further in view of Garg et al (US 2006/0171362).

For claims 7,15,23, Sherman and Lazoff discloses the claimed invention as described in paragraph 5.

Sherman and Lazoff is silent about:

As regarding claim 7, 15, 23 ,selecting a number that is lower than said Maximum Service Intervals, and selecting a number that is lower than said calculated SI and is a submultiple of a beacon interval.

Garg from the same or similar field of endeavor discloses a polling method with the following features:

As regarding claim 7, 15, 23 ,selecting a number (see Figure 3, 306, 305) that is lower (see Figure 3, 306, 307) than said Maximum Service Intervals (see Figure 3, 307), and selecting a number (see Figure 3, 306, 305) that is lower (see Figure 3, 306, 305 307) than said calculated SI (see Figure 3, 307) and is a submultiple of a beacon interval (see Figure 3,301,305).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Sherman and Lazoff by using the features, as taught by Garg, in order to provide a method of polling and transmitting traffic in order to preserve power (see sections 0004-0008).

7. Claim 8,16, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sherman (US 2003/0161340) in view of Lazoff (US 2004/0151283) as applied to claim 6, 14, and 22 above, further in view of Kowalski (US 2003/0063563) and Sugar et al. (US 2007/0263357)

For claims 8,16, 24, Sherman and Lazoff discloses the claimed invention as described in paragraph X.

Sherman and Lazoff is silent about:

For claims 8,16, 24, additional parameters: Transmission Rate (Ri), Size of Maximum MSDU , and Overheads in Time units.

Kowalski from the same or similar field of endeavor disclose scheduler with the following features:

For claims 8,16, 24, additional parameters: Transmission Rate (Ri) (see section 0070 lines 1-8 "mean data rate"), , and Overheads in Time units (see section 0070 lines 1-8 "Overhead time").

Sugar et al from the same or similar field of endeavor discloses wireless network with the following features:

For claims 8,16, 24, Sugar discloses Size of Maximum MSDU (see section 0004 lines 1-5 "maximum MSDU size")

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Sherman and Lazoff by using the features, as taught by Kowalski and Sugar, in order to provide a scheduler for providing quality of service (see Kowalski sections 0014-0016) and in order to improve throughput of wireless network by adjusting network access parameters (see Sugar sections 0024-0025).

8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sherman (US 2003/0161340) in view of Esteves et al (US 2007/0263655)

A system (see Figure 1, 100) for seamlessly granting (see section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals") polls for upstream (see section 0031 lines 1-5 "traffic delivered to STAs in its network and STAs deliver traffic" and section 0029 15-20 "delivering traffic to the STAs") while simultaneously (see section 0031 lines 1-20 "polls may be piggybacked on data frames") sending downstream (see section 0031 lines 1-5 "traffic delivered to STAs in its network and STAs deliver traffic" and section 0029 15-20 "delivering traffic to the STAs") traffic (see section 0031 lines 1-20 "polls may be piggybacked on data frames") from said (AP)(103) (see section 0040 "HC" and Figure 1, 105, 117) to said at least one WSTA(110, 112, 114) (see section 0040 lines 1-10 "STAs"), the system (see Figure 1, 100) comprising:

(1) receive a request (see section 0040 lines 1-10 "STAs may request transmission oppurtunities from the HC" and Figure 2C ;217-229) to send at least one data stream (see section 0031 lines 1-5 "traffic delivered to STAs in its network and STAs deliver traffic" and section 0029 15-20 "delivering traffic to the STAs") for transmission (see section 0040 lines 1-10 "STAs may request transmission oppurtunities from the HC") from at least one WSTA(110, 112, 114) (see section 0040 lines 1-10 "STAs") by said QAP(103) (see section 0040 "HC" and Figure 1, 105, 117);

(2) grant (see section 0038 lines 5-15 "right to transmit is assigned to STAs" and section

0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals") said request (see section 0040 lines 1-10 "STAs may request transmission oppurtunities from the HC" and Figure 2C ;217-229) to send said at least one data stream (see section 0031 lines 1-5 "traffic delivered to STAs in its network and STAs deliver traffic....STA may transmit" and section 0029 15-20 "delivering traffic to the STAs") by said

WSTA (110, 112, 114) (see Figure 1, 101,102,103)or QAP(103) (see Figure 1, 105, 117); transmit (see section 0048 "STA transmits"), by said at least one WSTA(ll0, 112, 114), a MAC (see section 0082 lines 1-5 "MAC frame") frame (see section 0048 lines 1-10 "frame....RR")

comprised of a set of parameters (see section 0048 lines 1-10 "values") defining the characteristics (see section 0048 lines 1-10 "values in the quality of service....traffic category....transmittion duration....transmission category...size") of said at least one data stream (see section 0031 lines 1-5 "traffic delivered to STAs in its network and STAs deliver traffic" and section 0029 15-20 "delivering traffic to the STAs" and section 0030 lines 1-10 "transmission of a frame "and section 0029 lines 1-10 "two frames...multicast frames" and section 0031 lines 15-25 "data frames"; and,

(4) calculate (see section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-15 "contention free period....use the wireless medium when granted permission"), by said QAP(103) (see Figure 1, 105, 117 and section 0038

lines 5-20 "contention period is a time period...frame exchange to occur....HCF....hybrid coordinator"), service and transmission times (see section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-20 "contention free period....use the wireless medium when granted permission...Acess algorithm")

according to a schedule algorithm (see section 0038 lines 5-15 "right to transmit is assigned to STAs" and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-15 "contention free period....use the wireless medium when granted permission") for servicing (see section 0038 lines 5-20 "right to transmit is assigned to STAs...frame exchange to occur.." and section 0035 lines 1-14 "HC...allocation of transmission opportunities (TXOP) to STAs....control contention intervals" and section 0029 lines 17-28 "contention free period" and section 0005 lines 5-15 "contention free period....use the wireless medium when granted permission" and section 0036 "STAs 101,102, and 103...connected via ...access point") said at least one WSTA(110, 112,

15 114) (see Figure 1, 101,102,103).

Sherman is silent about:

As regarding claim 18, a memory for storing a computer-readable code; and,

a processor operatively coupled to said memory, said processor configured to:

Esteves et al. from the same or similar field of endeavor discloses a access point with the following features:

As regarding claim 18, a memory (see section 0061 lines 1-25 "access point...memory") for storing a computer-readable code (see section 0061 lines 1-25 "access point...memory") ; and,

a processor (see claim 18 "processor" and section 0061 lines 1-25 "access point...processor") operatively coupled to said memory (see section 0061 lines 1-25 "access point...memory"), said processor (see claim 18 "processor" and section 0061 lines 1-25 "access point...processor") configured to:

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Sherman by using the features, as taught by Esteves et al, in order to provide an apparatus for modifying an open-loop rate adaptation algorithm (see sections 0017-0020).

9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sherman (US 2003/0161340) in view Esteves et al (US 2007/0263655) as applied to claim 18 above, further in view of Ho (US 2003/0081547).

For claim 19, Sherman and Esteves disclose all the claimed invention as in paragraph 8.

For claims 19, Sherman discloses parameters (see section 0048 lines 1-10 "values") of said MAC (see section 0082 lines 1-5 "MAC frame") frame (see section 0048 lines 1-10 "frame....RR") .

Sherman is silent about:

For claim 19, Mean Data Rate 6o0, Nominal MSDU Size (Li), and Maximum Service Interval or Delay Bound (Di).

Ho from the same or similar field of endeavor discloses a communication system with the following features:

For claim 19, Mean Data Rate 6o0 (see section 0089 lines 1-24 "mean data rate"), Nominal MSDU Size (Li) (see section 0089 lines 1-24 "nominal MSDU size"), and Delay Bound (Di) (see section 0089 lines 1-24 "delay bound").

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Sherman and Esteves by using the features, as taught by Ho, in order to provide a method for initiating a QoS action on a traffic stream (see sections 0009-0011).

Allowable Subject Matter

10. Claim 9,10, 17, 25,26 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. Additionally, the objection set forth in this office action need to be addressed.

For claim 9, 17, 25, the closes prior art (US 2003/0063562) discloses a expression for TXOP, however it fails to teach the formulas for calculating transmit opportunity.

For claim 10, and 26, the closes prior art (US 2003/0063562) discloses a expression for TXOP, however it fails to teach the formulas for calculating transmit opportunity.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US-2002/0089994 A1	07-2002	Leach et al.	370/412
US-2002/0093929 A1	07-2002	Mangold et al.	370/336
US-2004/0081133 A1	04-2004	Smavatkul et al.	370/346
US-2004/0114534 A1	06-2004	Benveniste, Mathilde	370/252
US-2004/0136396 A1	07-2004	Yonge et al.	370/445
US-2004/0190467 A1	09-2004	Liu et al.	370/311
US-2005/0174973 A1	08-2005	Kandala et al.	370/338

The above are referenced to show methods/systems of polling or scheduling of transmission.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenan Cehic whose telephone number is (571) 270-3120. The examiner can normally be reached on Monday through Friday 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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